AMENDMENT TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Previously Presented) A method of processing image data comprising the steps of:

converting broad-range image data having a broad dynamic range to narrow-range image data narrower in dynamic range than the broad-range image data;

inversely converting the narrow-range image data to thereby output inversely converted image data having a same dynamic range as the broad-range image data;

calculating difference data representative of a difference between the broad-range image data and the inversely converted image data; and

generating a file that relates the difference data, information relating the difference data to said step of converting and the narrow-range image data to one another.

2. (Original) The method in accordance with claim 1, further comprising the step of recording the file.

3. (Currently amended) The method in accordance with claim 1, wherein the broad-range image data is— relates to the inversely converted image data in such a manner that the

broad-ranged image data can be reproduced by adding the difference data to the inversely

converted image data.

4. (Previously Presented) The method in accordance with claim 1, wherein said step of

converting comprises the sub-step of linearly converting a number of quantizing levels of the

broad-range image data, and said step of inversely converting comprises the sub-step of linearly,

inversely converting a number of quantizing levels of the narrow-range image data.

5. (Previously Presented) The method in accordance with claim 1, wherein said step of

converting comprises the sub-step of nonlinearly converting a number of quantizing levels of the

broad-range image data, and said step of inversely converting comprise the sub-step of

nonlinearly, inversely converting a number of quantizing levels of the narrow-range image data.

6. (Currently Amended) ~~The~~ A method ~~in accordance with claim 1~~ of processing image

data comprising the steps of:

converting broad-range image data having a broad dynamic range to narrow-range image

data narrower in dynamic range than the broad-range image data;

inversely converting the narrow-range image data to thereby output inversely converted

image data having a same dynamic range as the broad-range image data;

calculating difference data representative of a difference between the broad-range image

data and the inversely converted image data; and

generating a file that relates the difference data, information relating the difference data to said step of converting and the narrow-range image data to one another, wherein

said step of converting comprises the sub-step of reducing a number of quantizing bits of the broad-range image data beginning with a least significant quantizing bit and continuing in sequence from the least significant bit towards higher order bits until the number of quantizing bits of the broad-range image data becomes equal to a number of quantizing bits of the narrow-range image data, and said step of inversely converting comprises the sub-step of adding ZERO bits to a least significant quantizing bit of the narrow-range image data until the number of quantizing bits of the narrow-range image data becomes equal to a number of quantizing bits of the broad-range image data.

7. (Withdrawn) A method of processing image data comprising the steps of:

nonlinearly transforming a number of quantizing levels of broad-range image data having a broad dynamic range to a number of quantizing levels of narrow-range image data narrower in dynamic range than the broad-range image data;

reducing the number of quantizing bits of the broad-range image data sequentially from a lowermost bit until the number of quantizing bits of the broad-range image data becomes equal to the number of quantizing bits of the narrow-range image data to thereby output residual upper-bit data;

calculating difference data representative of a difference between the narrow-range image data and the upper-bit data; and

generating a file that relates at least lower-bit data omitted by said step of reducing, information relating the lower-bit data to said step of reducing, the difference data, information relating the difference data to said step of nonlinearly transforming and the narrow-range image data to one another.

8. (Withdrawn) The method in accordance with claim 7, further comprising the step of recording the file.

9. (Withdrawn) The method in accordance with claim 7, wherein the broad-range image data is reproducible by adding the difference data to the narrow-range image data and then adding the lower-bit data as lower bits.

10. (Previously Presented) An apparatus for recording image data comprising at least one image processing circuitry and a storage, said at least one image processing circuitry comprising:

a converting circuit for converting input image data to output image data having a smaller number of quantizing levels than the input image data and feeding the output image data to another image processing circuitry;

an inverse converting circuit for inversely converting the output image data to thereby produce inversely converted image data having a same dynamic range as the input image data; and

a calculating circuit for calculating difference data representative of a difference between the input image data and the output image data;

said at least one image processing circuitry converting broad-range image data having a broad dynamic range to narrow-range image data narrower in dynamic range than the broad-range image data,

the narrow-range image data, the difference data and information relating the difference data to said converting circuit being recorded in said storage while being related to one another.

11. (Previously Presented) The apparatus in accordance with claim 10, wherein said converting circuit comprises a linear converting circuit for linearly converting a number of quantizing levels of the broad-range image data, and said inverse converting circuit comprises a linear inverse converting circuit for linearly, inversely converting a number of quantizing levels of the narrow-range image data.

12. (Previously Presented) The apparatus in accordance with claim 10, wherein said converting circuit comprises a nonlinear converting circuit for nonlinearly converting a number of quantizing levels of the broad-range image data, and said inverse converting circuit comprises a nonlinear inverse converting circuit for nonlinearly, inversely converting a number of quantizing levels of the narrow-range image data.

13. (Currently Amended) ~~The~~ And apparatus ~~in accordance with claim 10~~ for recording

image data comprising at least one image processing circuitry and a storage, said at least one

image processing circuitry comprising:

a converting circuit for converting input image data to output image data having a smaller

number of quantizing levels than the input image data and feeding the output image data to

another image processing circuitry;

an inverse converting circuit for inversely converting the output image data to thereby

produce inversely converted image data having a same dynamic range as the input image data;

and

a calculating circuit for calculating difference data representative of a difference between

the input image data and the output image data;

said at least one image processing circuitry converting broad-range image data having a

broad dynamic range to narrow-range image data narrower in dynamic range than the broad-

range image data,

the narrow-range image data, the difference data and information relating the difference

data to said converting circuit being recorded in said storage while being related to one another,

wherein

said converting circuit comprises a circuit for reducing a number of quantizing bits of the

broad-range image data beginning with a least significant quantizing bit and continuing in

sequence from the least significant bit towards higher order bits until the number of quantizing

bits of the broad-range image data becomes equal to a number of quantizing bits of the narrow-

range image data, and said inverse converting circuit comprises a circuit for adding ZERO bits to

a least significant quantizing bit of the narrow-range image data until the number of quantizing

bits of the narrow-range image data becomes equal to a number of quantizing bits of the broad-

range image data.

14.   (Withdrawn) An apparatus for recording image data comprising at least one image

processing circuitry and a storage, said at least one image processing circuitry comprising:

a nonlinear transforming circuit for nonlinearly transforming input image data to output

image data having a smaller number of quantizing levels than the input image data and feeding

the output image data to another image processing circuitry;

a reducing circuit for reducing the number of quantizing bits of the input image data

sequentially from a lowermost bit until the number of quantizing bits of the broad-range image

data becomes equal to the number of quantizing bits of the output image data to thereby output

residual upper-bit data; and

a calculating circuit for calculating difference data representative of a difference between

the output image data and the upper-bit data;

said at least one image processing circuitry transforming broad-range image data having a

broad dynamic range to narrow-range image data narrower in dynamic range than the broad-

range image data, and

at least the narrow-range image data, the lower bits omitted by said reducing circuit,

information relating the lower bits to said reducing circuit, the difference data and information

relating the difference data to said transforming circuit being recorded in said storage while

being related to one another.

15.   (New)   The method in accordance with claim 6, further comprising the step of

recording the file.

16.   (New)   The method in accordance with claim 6, wherein the broad-range image data

relates to the inversely converted image data in such a manner that the broad-ranged image data

can be reproduced by adding the difference data to the inversely converted image data.